

# Study Guide for Semester II Exam

2010 - 2011 Biology, Mr. Schulz

Chapters 8 - 12, 21 - 24, 32 - 35

pp. 216 – 381, 574 – 704, 932 – 1039

## Topics

Reading and interpreting data tables and graphs

Photosynthesis and Cellular Respiration

Light reactions, Calvin Cycle, Electron Transport Chain, Krebs's Cycle, fermentation, ATP, cell organelles involved in these processes

Microscopes, parts of scopes, measurements, and how things look through a scope

DNA – structures (nucleotides, base pairs); replication, transcription and translation; coding for amino acids/proteins

Mendel's four rules and laws of genetics

- Punnett Squares, pheno- and geno-types, alleles, applications of crossbreeding to determine traits of offspring

Pedigrees and Inheritance patterns

- multiple alleles, codominance, incomplete dominance, sex-linked genes, polygenic inheritance

Mitosis and Meiosis – purpose, what results from each process

Fungi – hyphae and mycelium; digest then ingest

Plants – alternation of generations, flower parts, differences between mono- and dicots, vascular and nonvascular

### List of Flower parts

anther, egg, filament, ovary, ovule, petal, pistil, pollen tube, sepal, stamen, stigma, style

Animals – body plans, skeletal systems, circulatory systems, invertebrates vs. vertebrates, growth from blastula to gastrula, worm organs

### Human Biology

- skeletal system, structure, function, types of joints; identification of bones
- muscular system, structure, muscle types, and how muscles contract; identification of muscles
- integumentary system, structures, glands, functions
- circulatory system function, components, vessels, blood flow, heart; identification of parts
- respiratory system components, how gases are exchanged, inhalation and exhalation; identify parts
- digestive system components and how food is converted to nutrients; identification of parts
- excretory system components and blood filter system; identification of parts
- neuron and how nerve impulses flow
- endocrine system, what the glands control

### List of human bones

*cranium*: frontal lobe, parietal lobe, occipital lobe, temporal lobe, mastoid, zygomatic, occipital condyles, foramen magnum, nasal, maxillary, mandible

*vertebrae and ribs*: cervical, thoracic, lumbar, sacrum, coccyx, true ribs, false ribs, floating ribs, manubrium, sternum, xiphoid process

*pelvic girdle*: ilium, pubic bone, ischium, pubic symphysis

*leg*: femur, patella, tibia, fibula, tarsals, metatarsals, phalanges

*pectoral girdle and arm*: scapula, clavicle, humerus, radius, ulna, carpals, metacarpals, phalanges

### List of human muscles

frontal, pectoral, biceps, triceps, external obliques, deltoids, rectus abdominus, gluteus maximus, quadriceps femoris, biceps femoris, sartorius, gastrocnemius

#### List of human heart and circulatory structures

septum, pericardium, pulmonary vein, left atrium, mitral valve, left ventricle, aortic valve, aorta, inferior vena cava, superior vena cava, right atrium, tricuspid valve, right ventricle, pulmonary valve, pulmonary artery

#### List of human respiratory structures

mouth, nose, epiglottis, pharynx, larynx, trachea, bronchi, lungs, alveoli, diaphragm

#### List of human digestive system structures

mouth, teeth, salivary glands, tongue, pharynx, epiglottis, esophagus, stomach, liver, pancreas, gallbladder, small intestine, large intestine, appendix, rectum, anus

#### List of human neuron structures

cell body, nucleus, dendrite, axon, axon ending, synapse

#### List of human excretory system structures

kidney, nephron, bowman's capsule, ureter, bladder, urethra

#### List of human endocrine glands

pituitary, hypothalamus, pineal, pancreas, parathyroid, thymus, adrenal, ovaries, testes

#### Applications

- how cellular respiration is related to muscle contractions, respiratory, and circulatory systems
- relationship of skin, vitamin D, the sun, skeleton, and muscles
- how the body does homeostasis
- how muscles contract / relax
- how exhalation and inhalation work with the gas laws
- how diffusion is important for metabolism and where it occurs in the body

#### **Vocabulary**

homeostasis

metabolism

ATP

aerobic

anaerobic

photolysis

glycolysis

diffusion

mitochondria

chloroplast

chlorophyll

ribosome

golgi apparatus

chemosynthetic autotroph

fermentation

lactic acid

mitosis

meiosis

chromatin

sister chromatids

centrioles

centromere

double helix

deoxyribonucleic acid  
ribonucleic acid  
nucleotide  
tRNA and mRNA  
gene  
chromosome  
codon  
allele  
genotype  
phenotype  
dominant  
recessive  
homozygous  
heterozygous  
heredity  
genetics  
pedigree  
polypeptide chain  
diploid  
haploid  
gamete  
zygote  
embryo  
prokaryote  
eukaryote  
autotroph  
heterotroph  
diffusion  
dorsal  
anterior  
ventral  
posterior  
sexual reproduction  
asexual reproduction  
hermaphrodite  
open circulatory system  
closed circulatory system  
-single/double loops  
blastula  
gastrula  
protostome  
deuterostome  
coelomate  
acoelomate  
pseudocoelomate  
ectoderm  
endoderm  
mesoderm

ectotherm  
endotherm  
exoskeleton  
endoskeleton  
epidermis  
dermis  
subcutaneous layer  
sebaceous gland  
sweat gland  
axial  
appendicular  
tendon  
ligament  
cartilage  
bursa  
periosteum  
marrow  
spongy bone  
compact bone  
actin  
myosin  
sarcomere  
spindle shape  
striated  
antibody  
hemoglobin  
pericardium  
artery  
vein  
capillary  
plasma  
red blood cells  
white blood cells  
platelets  
inhalation  
exhalation  
hormone  
pulmonary circulation  
systemic circulation  
villi  
lichen  
hyphae  
mycelium  
sporangium  
spore

vascular  
nonvascular  
phloem  
xylem  
monocot  
dicot  
sporophyte  
gametophyte  
stomata  
transpiration  
cotyledon  
annual  
perennial  
biennial